5.0 ENVIRONMENTAL SETTING AND CONTEXT

This chapter provides a brief description of the environmental context of the I-10 Corridor Improvement Study, specifically the social, environmental, and historic/cultural conditions. This information was prepared to provide a baseline summary of existing conditions. Additional details relating to more specific technical studies will be provided in the Environmental Impact Statement (EIS), the document that the Federal Highway Administration (FHWA) has determined to be appropriate based on the level of impacts proposed for this project. An EIS will be prepared for this project in accordance with FHWA's regulations as required under the National Environmental Policy Act (NEPA) and guidance from the Arizona Department of Transportation (ADOT). As part of the NEPA review, the requirements of other environmental laws and executive orders will be addressed as they apply to specific portions of the document.

5.1 INTRODUCTION

The project study area is located in or adjacent to the Town of Guadalupe, the cities of Phoenix, Chandler and Tempe; in Maricopa County, Arizona. The study limits consist of approximately 15 miles of Interstate 10 (I-10) and segments of Interstate 17 (I-17), State Route 143 (SR 143) and US Highway 60 (US 60).

Throughout this section of the Alternative Selection Report, the term "study limits" is used to represent the construction footprint (area of disturbance), while the term "project area" also includes surrounding lands, outside but adjacent to the study limits. The term "project vicinity" is used to denote a more expansive landscape context.

5.2 LAND USE AND OWNERSHIP

This section summarizes land use in the project area to be considered in relation to the project's consistency with regional and local planning. Existing land use was determined by analyzing aerial photography, current development trends, and land cover that is presently in place.

No tribal or federal land exists within the project limits. The land adjacent to ADOT right-of-way (R/W) within the project limits is largely privately owned or within municipal ownership. Land owned by the Arizona State Land Department (ASLD) is located south of the I-17, between 7th and 12th Streets. There is state-owned land within the Phoenix South Mountain Park and at the southwest corner of 48th Street and Guadalupe Road.

As shown on Figure 13, nearly all land within the study limits is privately owned with some parcels of public property including three parks. Four cities and towns have planning authority over land within and adjacent to the project area: the City of Phoenix, City of Tempe, Town of Guadalupe and the City of Chandler.

Major employment centers within the project area include the following retail, commercial and industrial centers directly adjacent to I-10:

- Chandler Pavilions
- Arizona Mills Mall
- Tempe Auto Mall
- IKEA shopping center
- Motorola Corporate Office
- Honeywell Corporate Office
- US Airways Corporate Office-Flight Simulation Facilities
- Bank of America Corporate Office
- Kalil Bottling Company
- Sky Harbor International Airport
- Arrow Stage Lines
- State Farm Insurance Corporate Offices

The following educational institutions are located adjacent to I-10:

- University of Phoenix
- Maricopa Community College
- Rio Salado College
- ITT Technical Institute
- Ottawa University

5.2.1 City of Phoenix

Land incorporated into the City of Phoenix extends from SR 51 to the Salt River, and encompasses the western portions of the project area. Land use in this area is a mix of residential, commercial and industrial development, as well as open space and public facilities (City of Phoenix General Plan, 2001). Developments within the City of Phoenix include the Sky Harbor International Airport, Bank One Corporate Office, several hotels and a highly industrial area north and south of I-10 between 32nd Street and 48th Street.

Land south of Baseline Road and west of I-10 is also within the City of Phoenix. East of I-10 is the Town of Guadalupe from Baseline Road to one-half mile south of Guadalupe Road. South of Guadalupe, there is some open space and agricultural land, but most of the land adjacent to I-10 is composed of commercial and industrial development. Developments in this area include the Tempe Auto Mall and the IKEA shopping center.

The City of Phoenix has adopted a redevelopment and infill project known as "Beyond the Banks" in the vicinity of I-10 and I-17. This project parallels the Salt River southwest of I-10 and encourages new development that will compliment the Rio Salado Project (a habitat restoration project for the Salt River).

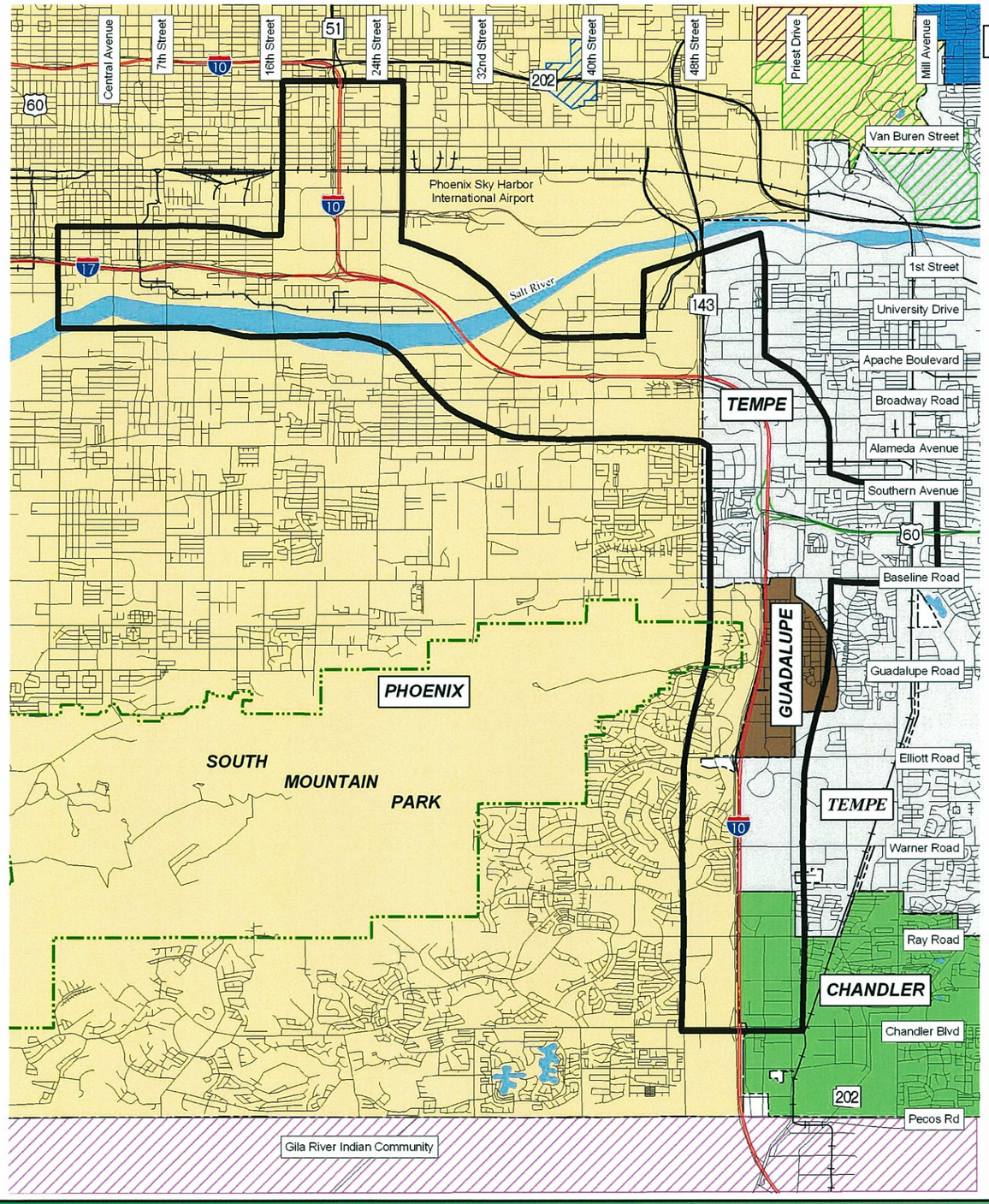


FIGURE 13: JURISDICTIONAL BOUNDARIES & LAND OWNERSHIP

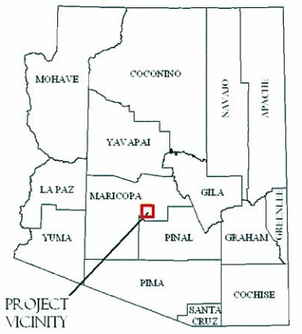
I-10 Corridor Improvement Study
SR51 to Santan Freeway (202L)

LEGEND

- RAILROAD

PUBLIC LANDS

- NATIVE AMERICAN COMMUNITIES
- MILITARY RESERVATION
- STATE LANDS
- STATE AND COUNTY PARKS
- CHANDLER
- GUADALUPE
- PHOENIX
- SCOTTSDALE
- TEMPE



0 1.25 2.5 Miles

Scale: 1:90,000
Projection: UTM-12 NAD27
Date: MARCH 2007
Project: ADOT TRACS # 010 MA H5454 01L

ADOT

Industrial development is concentrated in an area extending southeast from the Salt River to 48th Street, although this area also contains some commercial and office development. There are several parcels of vacant land adjacent to I-10 near where the Salt River intersects SR 143. There is some high-density residential development located southwest of the intersection of I-10 and 48th Street. Land use east of 48th Street is primarily industrial, but there are small pockets of commercial development. From Southern Avenue to Baseline Road, there is a mix of residential development in varying densities.

From Baseline Road to the southern edge of the project area, land to the east of I-10 is a mix of open space, commercial, office, industrial, and low to high density residential development. While there are a few regional commercial or office locations, a majority of the land has been developed for residential use resorts (City of Tempe General Plan 2030, 2003).

5.2.2 City of Tempe

The City of Tempe is located east of the City of Phoenix, and extends from approximately SR 143 on I-10 to Baseline Road and from Elliott Road to south of Warner Road. Land adjacent to I-10 has been developed for residential, industrial and commercial uses. Major commercial and industrial developments include Tempe Diablo Stadium, Arizona Mills Mall, Wyndham Buttes Resort, Motorola Corporate Offices, Fairmont Commerce Center, the Tempe Auto Mall and Kalil Bottling.

Residential developments include the Meadows Mobile Home Park, Peterson Park Neighborhood, Tempe Villages, Galleria Palms, and Greenwood Village Apartments. Several residential neighborhoods and subdivisions lie adjacent to the US 60 corridor, including: Roosen Place, Southern Palms Unit II and Unit III, Knoell Gardens, Rancho Tempe Mobile Home Park and the Tierra Verde Apartments.

5.2.3 Town of Guadalupe

The Town of Guadalupe extends south on I-10 from Baseline Road to Elliot Road, on the eastern side of I-10. The boundary of the Town of Guadalupe is included in the study limits. A majority of the community is composed of low density residential development, with some parks and small commercial centers (Town of Guadalupe General Plan, 1992).

5.2.4 City of Chandler

A small portion of the City of Chandler is within study limits, extending south of Knox Road and east of I-10. Dominant land use is industrial and commercial. There is a small parcel of vacant land south of Ray Road. Adjacent land use within the City of Chandler is similar to adjacent land use within the City of Tempe with several regional commercial centers and industrial headquarters, including the Chandler Pavilions.

5.3 HAZARDOUS MATERIALS

This section presents findings related to existing hazardous or regulated material sites within the study area. These sites would have the potential to impact construction of the project depending on the type of facility, distance from the proposed construction, soil types, and surface and groundwater elevation gradients. Hazardous or regulated material sites could increase costs associated with right-of-way acquisition and could also present future risk to ADOT as the new property owner, should the purchase of contaminated property occur. Most importantly, these sites can present risks to human health and ecological receptors exposed to the materials or contaminated media.

A Draft Initial Site Assessment (ISA) was completed in June 2003 to investigate and identify potentially hazardous properties within the study area. The ISA included a review of published documentation and historic land use information such as aerial photographs, and a physical inspection of the study limits.

Over 3,000 sites in 36 federal and state environmental databases were identified in the Environmental Data Resources (EDR) records search for the ISA (EDR 2002 and 2003), although some sites are listed in multiple databases. Of the listed sites, 82 were determined to be sites of concern based on their proximity to the project corridor, the nature of the database containing the site listing, and/or the potential for the migration of materials via groundwater or soil into the study limits. Two separate site reconnaissance surveys conducted in January 2002 and March 2003 identified 46 additional sites of concern. These sites included service stations (currently existing and closed), automotive and transportation service facilities, civilian aircraft facilities, and various manufacturing plants.

The 128 identified sites have been ranked according to their relative risk of hazardous materials impacts. Based on business type, proximity to the project corridor, past land use and regulatory history, 8 of the sites were determined to be high-risk. Detailed information regarding these high-risk sites is provided in an Initial Site Assessment (ISA) report (Entranco 2003). A review of the 2003 ISA was conducted with the ADOT hazardous materials technical specialist on June 3, 2005. Table 31 on page 146 lists the potentially high risk sites located within the project area.

Further investigation was recommended for the Gannon and Scott Refinery site. The Draft Initial Site Assessment I-10 Corridor Improvement Study, June 2003, concluded that remaining sites (1, 2, 3, 14, 85 and 94) would not require a Phase II Investigation, but that the acquisition include mitigation measures during construction.

An Initial Site Assessment (ISA) (HDR 2005) and a Preliminary Site Investigation (PSI) (HDR 2006) were completed for the Gannon and Scott site in 2005 and 2006 respectively. The ISA identified six areas within the site that could potentially have residual impacts from hazardous materials. Further assessment found that the subsurface areas above the groundwater table may be disturbed during excavation activities associated with roadway construction. No further investigation was recommended for any contaminants of concern in subsurface material.

Table 31 – Potentially High-Risk Sites Search Summary

Site No. in ISA	Name	Address	Business Type
1	Air Cargo Transit Inc. (currently Kodiak Produce and Storage)	1033 E. Maricopa Freeway	Produce company, UST
2	Lower Buckeye Site (currently Ameron Pipe)	1007-1011 E. Maricopa Freeway	Steel pipe manufacture, UST
3	Crockett's UST Facility (currently Superior Trucking)	1007 E. Maricopa Freeway	Trucking and distribution
4	Gannon & Scott Refinery (formerly Handy & Harmon Refining Group)	2113 E Mojave Street, or 2113 E Sky Harbor Circle*	Metals Refinery
14	Phoenix Sky Harbor International Airport	3200 – 3400 Sky Harbor Boulevard*	Airport
15	Abb's Trenching Service	3025 S. 40th Street	Excavation, fuel island
85	Kalil Bottling Co.	4045 E. 38th Street	Beverage Distribution, fuel island, AST
94	Greyhound Bus Terminal	2115 E. Buckeye Road	Bus Terminal, fuel island, AST

AST: Aboveground Storage Tank; UST: Underground Storage Tank
*Address has been revised to more accurately describe location of the site
Source: *Draft Initial Site Assessment I-10 Corridor Improvement Study*, June 2003

5.4 AIR QUALITY

Under the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has established air quality standards to protect public health and the environment. EPA has set national ambient air quality standards (NAAQS) for the six primary air pollutants. These criteria pollutants include: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM10 and PM2.5) and sulfur dioxide (SO_2) as shown in Table 32. Arizona has adopted the federal NAAQS as the state Ambient Air Quality standards as well.

EPA designates an area as nonattainment if it has violated, or has contributed to violations of, the NAAQS over a three-year period. If an area is designated as nonattainment, the Clean Air Act (CAA) requires the State, local and tribal governments to develop and produce a State Implementation Plan (SIP) to reduce emissions of the pollutants that exceed federal standards. A SIP is an enforceable plan developed at the state and local level that explains how the area will comply with air quality standards according to the CAA. The SIP is the cumulative record of all air pollution control strategies, state statutes, state and local rules and local ordinances implemented under Title I of the CAA by governmental agencies within the State.

5.4.1 Conformity in Maricopa County

The Maricopa Association of Governments (MAG) is the lead air quality planning organization for the Phoenix Metropolitan area. As the air quality planning agency, MAG, working with its member governments, is responsible for Arizona SIP requirements in the Phoenix nonattainment areas. Plans produced by MAG are implemented and enforced by state and local governments in Arizona. The current Conformity Analysis (July 2006) for Fiscal Years (FY) 2007–2011 MAG Transportation Improvement Program found the FY 2007 to 2011 MAG Transportation Improvement Program and MAG Regional Transportation Plan – 2006 Update in conformity with federal criteria.

Table 32 – National (EPA) Ambient Air Quality Standards (NAAQS)

	National (EPA)	
	Primary	Secondary
Particulate Matter		
PM_{10} (1)		
Annual average	Revoked (3)	50 µg/m³
24-hour average	150 µg/m³	150 µg/m³
$PM_{2.5}$ (2)		
Annual average	15.0 µg/m³ (4)	15 µg/m³
24-hour average	35 µg/m³	65 µg/m³
Lead (Pb)		
Quarterly average	1.5 µg/m³	1.5 µg/m³
Sulfur Dioxide (SO_X)		
Annual average	0.03 ppm (5)	No standard
24-hour average	0.14 ppm	No standard
3-hour average	No standard	0.50 ppm
1-hour average	No standard	No standard
Carbon Monoxide (CO)		
8-hour average	9 ppm	No standard
1-hour average	35 ppm	No standard
Ozone (O_3)		
8-hour average	0.08 ppm	0.08 ppm
1-hour average	Revoked (6)	0.12 ppm
Nitrogen Dioxide (NO_X)		
Annual average	0.053 ppm	0.053 ppm

Notes: Annual standards never to be exceeded. Short-term standards not to be exceeded more than once per year unless noted.
1) PM_{10} = particles 10 microns or less in size
2) $PM_{2.5}$ = particles 2.5 microns or less in size
3) Revoked = due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM_{10} standard in 2006 (effective December 17, 2006).
4) µg/m³ = micrograms per cubic meter
5) ppm = parts per million
6) As of June 15, 2005 EPA revoked the 1-hour ozone standard in all areas except the fourteen 8-hour ozone nonattainment Early Action Compact (EAC) Areas. Phoenix is not one of those areas.
Source: U.S. Environmental Protection Agency. 2006. (http://www.epa.gov/air/criteria.html#6)

The Maricopa County Air Quality Department has installed and operates air quality monitoring stations at various sites throughout Maricopa County to monitor the levels of the three major air pollutants in the region: PM10, CO, and O_3. Three air quality monitoring stations are located near the project area. The south Phoenix site is located at Central Avenue and Broadway Road, the

central Phoenix site is located at 16th Street and Roosevelt Street, and the Tempe site is at Apache Boulevard and College Avenue (Maricopa County 2007).

Any action alternative would be required to be in compliance with the SIP. Annual air quality modeling by MAG would determine whether the proposed project complies with the regional air quality requirements. As the current level of service at several interchanges is poor, and projected traffic growth is substantial, microscale or "hot-spot" analyses would be required at proposed interchanges and intersections.

The air quality dispersion model recommended by the EPA and ADOT for roadway projects that will be used in the analysis for this project is CAL3QHC Version 2.0. The model considers free-flow and idling emissions in conjunction with intersection geometry, wind direction, and other meteorological factors.

Vehicles are the dominant source for CO pollution; therefore, CO is the primary pollutant of concern when considering the effects of a transportation project. CO will be the primary focus of the analysis for this project. Other pollutants generated by vehicles include ozone (O_3) precursors, hydrocarbons (HC), and nitrogen dioxide (NO_2). Fine particulate matter (PM_{10}) is also emitted in vehicle exhaust and generated by the interaction of tires with pavement (as well as unpaved roadways). Individual vehicles generate as much as 45% of total PM_{10} emissions (MAG 2004). While the EPA has indicated that PM_{10} is a pollutant of concern when considering mobile sources of air pollution (vehicles), guidance for localized PM_{10} analysis has not been adopted by the EPA. Detailed analysis of CO emissions will be required for the project.

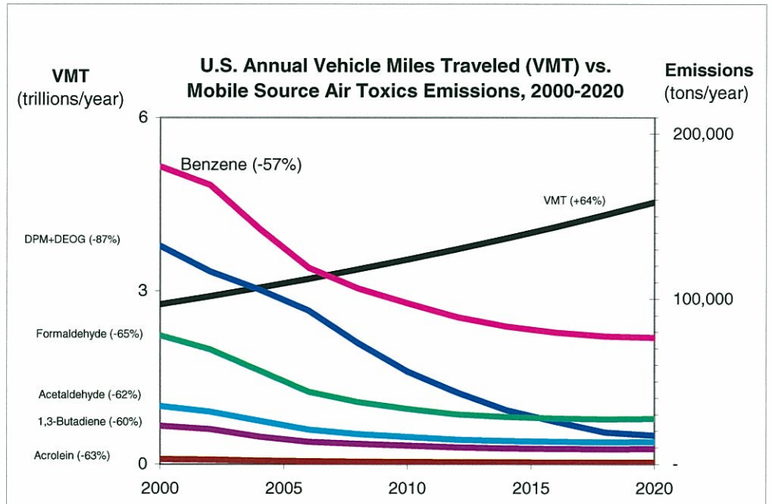
Carbon monoxide impacts are localized; even under the worst meteorological conditions and most congested traffic conditions, high concentrations are limited to within a relatively short distance (300 to 600 ft.) of heavily traveled roadways. The HC and NO_2 emissions from vehicles are a concern primarily because of their role as precursors in the formation of O_3 and particulate matter. Ozone is formed through a series of reactions that take place in the atmosphere in the presence of sunlight. Since the reactions are slow and occur as the pollutants are diffusing downwind, elevated ozone levels are often found many miles from the sources of precursor pollutants. The effects of HC and NO_2 emissions are therefore examined on a regional or "mesoscale" basis.

The air quality analysis performed to assess impacts from the proposed project will include a quantitative analysis of MSATs and a Hot Spot analysis.

5.4.2 Mobile Source Air Toxics

In addition to the criteria air pollutants for which there are NAAQS, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).
Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the CAA. The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The EPA is the lead federal agency for administering the Clean Air Act Amendments (CAAA) and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources 66 FR 17229 (March 29, 2001). This rule was issued under the authority in Section 202 of the CAA. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA forecasts that even with a 64 percent increase in vehicle miles traveled (VMT), these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-highway diesel PM emissions by 87 percent, as shown below.



Notes: For on-road mobile sources. Emissions factors were generated using MOBILE6.2. MTBE proportion of market for oxygenates is held constant, at 50%. Gasoline RVP and oxygenate content are held constant. VMT: *Highway Statistics 2000*, Table VM-2 for 2000, analysis assumes annual growth rate of 2.5%. "DPM + DEOG" is based on MOBILE6.2-generated factors for elemental carbon, organic carbon and SO4 from diesel-powered vehicles, with the particle size cutoff set at 10.0 microns.
Source: ADOT Environmental Planning Group, 2007.

As a result, EPA concluded that no further motor vehicle emissions standards or fuel standards were necessary to further control MSATs. The agency is preparing another rule under authority of CAA Section 202(l) that will address these issues and could make adjustments to the full 21 and the primary six MSATs.

Unavailable Information for Project Specific MSAT Impact Analysis

A basic analysis of the likely MSAT emission impacts of this project will be included in the EIS.

5.5 NOISE

The word "noise" is typically defined as unwanted sound. The loudness of noise is measured in units called decibels (dBA). However, since the human ear does not hear sound waves (i.e., noise) of different frequencies at the same subjective loudness, an adjustment or weighting of the high-pitched and low-pitched noises is often made to approximate average human perception. When such adjustments to the noise levels are made, they are called "A-weighted levels" and are labeled "dBA."

A traffic noise analysis will be performed based on the preliminary design concepts to determine if substantial changes in traffic noise would occur from this project. Noise barrier locations and heights will be analyzed for noise attenuation (mitigation) in accordance with 23 USC Section 109(h) and (i), of the FHWA guidelines for the assessment of highway traffic-generated noise. These regulations, published as Part 772 of Title 23 of the Code of Federal Regulations, provide procedures to be followed in conducting noise analyses that will protect the public health and welfare. Additionally, the analysis will be performed in accordance with the ADOT's Noise Abatement Policy (NAP), dated December 5, 2005, and all subsequent updates.

Noise-sensitive land uses and activities in the vicinity of the I-10 project will be identified and analyzed based on the type of land use and FHWA noise abatement criteria (NAC). The criteria and activity categories are summarized in Table 33. The NAC specify noise levels considered to be the upper levels of acceptability for outdoor activities and certain indoor activities.

The ADOT *Noise Abatement Policy for Federal Aid Projects* (NAP) [December 5, 2005] indicates that a traffic noise impact occurs under either of the following conditions:

- When the predicted level approaches or exceeds the FHWA's NAC. "Approaches" is defined as within 3 dBA of the NAC, or 64 dBA hourly equivalent sound level [Leq (h)] for residential areas, schools, and parks and 69 dBA Leq (h) or greater for businesses; or
- When the predicted level substantially exceeds the existing noise level. "Substantial" is defined as 15 dBA.

Multiple noise-sensitive receivers are located adjacent to the I-10 corridor. Based on a review of current aerial photography and land use maps, approximately 530 single-family residences, 90 apartment buildings, and 180 businesses are located adjacent to the existing I-10 right-of-way.

Because project alternatives would include roadway widening and reconstruction, and the reconstruction of interchanges (added capacity), a noise analysis will be required to determine if noise-sensitive receivers will be impacted by the proposed project. According to the ADOT Noise Abatement Policy (ADOT 2000), only noise-sensitive receivers that exist or have approved building permits at the time of the analysis will need to be evaluated for the environmental analysis.

Table 33 – Noise Abatement Criteria (NAC) Hourly Sound Level, A-Weighted Decibels (dBA)

Activity Category	L_{eq} (h)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	-	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

Notes: L_{eq}(h) is the one-hour energy equivalent sound level.
The interior noise levels (activity) apply to: (1) Indoor activities for those parcels where no exterior noise-sensitive land use or activity is identified, and (2) Those situations where the exterior activities are either remote from the highway or shielded in some manner so that the exterior activities will not be affected by the noise, but the interior activities will be affected.
Source: 23 CFR 772

Any action alternative will likely require noise abatement measures. Detailed noise analysis will be conducted to determine site-specific levels and abatement recommendations. The FHWA Traffic Noise Model (TNM 2.5) will be used to determine where noise impacts are likely to occur and where mitigation will be needed in accordance with the ADOT policy.

5.6 VISUAL QUALITY

NEPA requires that consideration is given to determine the effect proposed federal actions or projects are likely to have on the quality of the human environment. This section is intended to provide an overview of the existing visual setting in the project area.

The low-lying desert of the I-10 corridor between the City of Phoenix and Chandler can be characterized as a highly-developed urban setting. There are pockets of moderate to high density residential, commercial and industrial development. Major topographic features visible near the highway include the Salt River crossing east of 24th Street, and the rock outcrops of Bell Butte and Double Butte in the vicinity of Broadway Road. At various locations, the visual environment from the highway is affected by overpasses and underpasses and roadway elevation. There are also walls constructed for highway noise mitigation at various locations throughout the corridor.

Several mountains dominate background views from I-10. North of the project area the peaks of the Phoenix Mountains Preserve are visible. Peaks associated with this complex, from north to south, include North Mountain, Piestewa Peak (formerly named Squaw Peak) and Camelback

Mountain. Slopes leading up South Mountain abut residential developments adjacent to the I-10 corridor south of Baseline Road. Beyond South Mountain to the west is the Estrella Mountain range.

Most land adjacent to the ADOT right-of-way is owned by private entities and lies in the jurisdiction of several municipalities. None of these entities have a system for managing visual resources.

5.7 WATER RESOURCES

This section describes the water resources located within the project area. Water resources within the project area are restricted to surface water bodies and include the Salt River and its tributaries, streams, canals, ditches, storm water collection facilities, and detention ponds,

5.7.1 The Salt River and its Tributaries

Two waterways within the project area have been determined to be jurisdictional waters of the United States (WUS) that fall under the jurisdiction of the US Army Corps of Engineers. They are the Salt River and the Tempe Drain Outfall Channel. A third waterway is an unnamed tributary of the Salt River that is located north of the intersection of 12th Street and Durango Street and may potentially be considered a WUS. Project coordination with the US Army Corps of Engineers will be undertaken to determine the status of this waterway.

The Salt River is the major topographic feature of the region. The Salt River enters the Phoenix Basin from the east, between the Superstition and Goldfield Mountains. Within the study area, the Salt River passes underneath I-10 east of 24th Street.

The Salt River is captured upstream behind several large dams and flows into the Phoenix Basin intermittently, when rainfall is abundant and the reservoirs are full. It is impounded in the Tempe Town Lake approximately three miles upstream of the I-10 bridge over the Salt River. The Salt River is currently considered an ephemeral waterbody with periodic flows when water is released from Tempe Town Lake and seasonal storm events. The Salt River is largely devoid of vegetation within the project limits and is comprised of cobble in the active channel (USACE 2006).

The Tempe Drain is a man-made tributary to the Salt River and is considered a perennial waterbody due to its hydrology being present throughout the year. It is lined by concrete upstream of 32nd Street. Hydrologic inputs include stormwater runoff from the cities of Tempe and Phoenix, shallow sub-surface flow from up-gradient source areas and direct precipitation. Urban runoff overflow, reclaimed water from the nearby City of Tempe Kyrene Reclamation Facility and turf irrigation from the Ken McDonald Golf course constitute secondary hydrologic inputs. The perennial hydrology in this area creates a wetland at the outfall of the Tempe Drain that is the only suitable wildlife habitat along the Salt River within the project area.

The project also crosses an unnamed tributary of the Salt River located north of the intersection of 12th Street and Durango Street. This tributary passes beneath the northbound and southbound frontage roads and I-17 mainline and continues to the to the south to the Salt River.

Construction activities are anticipated at the I-10 bridge over the Salt River and the Tempe Drain outfall. The existing Salt River bridge structures would be widened on both sides for the additional HOV and express lanes. New bridges for the local lanes would be added on either side of the existing bridges. The Salt River bridge widening and new bridges would require the placement of additional bridge piers within the Salt River bed.

Because this project would result in one or more acres of ground disturbance, an Arizona Pollutant Discharge Elimination System (APDES) permit would be required.

5.7.2 Sole Source Aquifers

There are no sole source aquifers located within the project vicinity. The nearest sole source aquifer in Arizona is the Upper Santa Cruz and Avra Basin Sole Source Aquifer, located approximately 60 miles south of the project. The northern limits of this aquifer are in Pinal County, near the Pinal-Pima County line.

5.7.3 Wild and Scenic Rivers

Wild and scenic rivers are surrounded by valuable scenic, recreational, geologic, fish and wildlife, historic and cultural resources. The Salt River is a highly controlled river course, with little natural vegetation remaining in the project vicinity. No wild or scenic rivers are located within the project area.

5.7.4 Other Water Resources

There are four canals within the study limits. The Grand Canal enters the northern project limits on SR 143, but does not intersect the roadway within the project limits. The San Francisco Canal intersects SR 143 between University Drive and 1st Street, then its north and south branches intersect I-10 near 32nd Street and 40th Street, respectively. The Western Canal enters the project limits in two locations, intersecting I-10 south of the US 60 interchange and again entering the eastern project limits near Chandler Boulevard. The Highline Canal intersects I-10 at two locations, near Baseline Road and again near Ray Road.

5.8 CLEAN WATER ACT – SECTION 401, 402 AND 404 PERMITS

I-10 spans the Salt River at the Tempe Drain Outfall and an unnamed tributary of the Salt River, north of the intersection of 12th Street and Durango Street. A jurisdictional delineation of both the Tempe Drain Outfall and the Salt River tributary has been performed and will be submitted for verification to the US Army Corps of Engineers at a later date.

If the construction activities cannot avoid impacts to the jurisdictional wetlands within the Salt River Channel, a Section 404 Individual Permit would be necessary. The Arizona Department of Environmental Quality would also require a Section 401 water quality certification.

5.9 FLOODPLAINS

Portions of the project area are located within the Federal Emergency Management Agency (FEMA) designated 100-year floodplain. The Salt River crosses I-10 within the study limits, and runs parallel to I-17 in the western limits of the project area. The Salt River has been designated as a floodway within its river banks. The 100-year floodplain of the Salt River lies within the floodway, as well as in areas outside of the floodway and within a levee structure located north of the River.

The Tempe Drain is a man-made drainage that is lined with concrete. The 100-year floodplain is located within the project limits from the confluence of the Tempe Drain Outfall Channel with the Salt River to just northwest of University Drive.

No other natural drainages cross the project corridor. Nevertheless, the 100-year floodplains associated with the Western Canal, North and South Branches of the Highline Canal and Grand Canal intersect I-10 within the study limits.

5.10 BIOLOGICAL RESOURCES

5.10.1 Biotic Communities

The project area is in a region that is part of the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community. This biotic community generally has high temperatures and low precipitation (Brown 1994). The habitats present within the project limits and study area are not characteristic of the Lower Colorado River Valley subdivision of the Sonoran Desertscrub due to the urbanization of the area.

The project limits are largely devoid of vegetation with the exception of disturbed parcels adjacent to the R/W and landscaped areas within the right-of-way. Vegetative habitats observed in the disturbed parcels sparsely consist of yellow paloverde *(Cercidium microphyllum)*, mesquite (*Prosopis* sp.), brittlebush (*Encelia farinosa*), desert broom (*Baccharis sarothroides*) and creosote bush (*Larrea tridentata*). Native landscape species have been planted along the roadway medians, edges of the R/W and at overpass approaches. The dominant landscape species observed are honey mesquite (*Prosopis glandulosa*), four-wing saltbush (*Atriplex canescens*), creosote bush, saguaro (*Carnegiea gigantea*), and various species of paloverde (*Cercidium* spp.).

The Salt River is largely devoid of vegetation within the project area with the exception of wetland fringe areas surrounding the confluence of the Tempe Drain Outfall and the Salt River.

The one area that does support wildlife is the outfall of the Tempe Drain, located near the I-10 bridge over the Salt River. The area surrounding the Tempe Drain Outfall contains a sustainable vegetative community, dominated by various native and non-native species. Many of the species observed within the Tempe Drain are emergent hydrophtyic marsh species such as cattail (*Typha domingensis* and *T. angustifolia),* sedges *(Cyperus* spp.), giant reed *(Arundo donax),* bulrush *(Scirpus californicus),* salt cedar *(Tamarix ramosissima)* and curly dock *(Rumex crispus).*

5.10.2 Wildlife

As outlined above, the project area is located within the Lower Colorado Valley subdivision of the Sonoran Desertscrub biotic community. Brown identified several species of birds, mammals, amphibians and reptiles that are commonly found in this biotic community.

Due to the project area's urban nature, wildlife that is commonly observed throughout the project area includes red tailed hawks, Harris's hawks, and turkey vultures. These species often prey on small mammals such as mice, white throated woodrats, and jackrabbits. These species may also prey on carrion. Other wildlife observed or anticipated to occur includes garter snakes, side-blotched lizards and bullfrogs. Tilapia was observed in the Tempe Drain Outfall during site inspections conducted in 2005.

The Salt River provides a wildlife linkage corridor through the project area. The Arizona Department of Transportation, in conjunction with the Arizona Game and Fish Department (AGFD) and other agency and non-governmental organizations developed the Arizona Wildlife Linkage Assessment which identifies the Salt River as a potential linkage zone between habitat blocks located east of the Phoenix metropolitan area with the Gila River and habitats located west of the Valley. Some species that may utilize the Salt River corridor include striped skunk, coyote, beaver and squirrels.

5.10.3 Threatened and Endangered Species

A review of the U.S. Fish and Wildlife Service (USFWS) species list for Maricopa County was conducted by a qualified biologist. The AGFD was contacted regarding special status species present within the project vicinity. AGFD indicated that no threatened, endangered, proposed or candidate species were present within the project limits. Designated critical habitat or habitat proposed to be listed as critical habitat for any of the listed species does not occur within the project limits.

Based on constituent habitat element requirements, species range information, and documented occurrences; there are two species that may occur within the project area. A separate biological evaluation (BE) has been prepared that evaluates the following two species:

- California brown pelican
- Yuma clapper rail

Analysis for the BE found the proposed project would not affect the California brown pelican. The effect of the project on the Yuma clapper rail has yet to be determined.

5.10.4 Arizona Special Status Species

Coordination with the AGFD did not identify any specific concerns related to this project. ADOT maintains a list of state sensitive species for which they routinely make accommodations. From this list, the western red bat (*Lasiurus blossevilli*) was identified as occurring within the project vicinity.

The western red bat is primarily a tree-dwelling species that roosts along riparian corridors with broad-leaved trees such as oaks, sycamores and cottonwoods (Sonoran Desert Conservation Plan, Species Fact Sheets). No large broad-leaf trees exist within the project area. During coordination with the AGFD, they indicated that they were not aware of any studies for western red bats within the Phoenix area; however, the western red bat has been known to occur within the Tempe area and near Cave Creek. They are known to move through the general Phoenix area (Schwartz 2005). AGFD does not think the western red bat would show up in the project area and is not known to be a resident to the project area (Schwartz 2005). The western red bat is not known to use roadway structures for roosting. Roadway work would not affect the western red bat and no accommodations would be made for this species.

5.10.5 Arizona Protected Native Plants

The project area was surveyed in April 2005 by a qualified biologist for the presence of protected native plants by walking the project area. The following protected plants were observed within the project area:

- California fan palm (*Washingtonia filifera*)
- blue paloverde (*Parkinsonia florida*)
- foothill paloverde (*Parkinsonia microphylla*)
- velvet mesquite (*Prosopis velutina*)

These plants did not appear to be planted along the Tempe Drain Outfall, with the exception of the California fan palm, and most likely recruited to this location. Protected native plants within the project limits would be impacted by this project; therefore, ADOT would notify the Arizona Department of Agriculture at least 60 days prior to the start of construction so that the Arizona Department of Agriculture can determine the disposition of these plants.

5.10.6 Migratory Bird Treaty Act

The Migratory Bird Treat Act (MBTA) prohibits harm to certain species of migratory birds by protecting all aspects of these birds, including their eggs, nests and feathers. It is known that various species of swallows inhabit Arizona and the cliff swallow could inhabit bridge and concrete structures within the project study area. The project area was investigated by a qualified biologist for the presence of cliff swallows in April 2005. The method used for detection of cliff swallows consisted of meandering pedestrian transects near culvert and/or bridge structures within the project limits. Survey efforts resulted in the detection of cliff swallow bird nests located at the Salt River Bridge along I-10 (MP 150.6 to 151.0).

Due to the presence of cliff swallow nests on the Salt River Bridge, several measures to mitigate the potential effects on the cliff swallow may be considered for this project. These mitigation measures may include preconstruction notification and coordination with ADOT and a qualified biologist, as well as avoiding construction during the bird's breeding season.

Other migratory birds such as mallard ducks, Canada goose, Virginia rail and great egrets could utilize inundated areas for foraging, nesting and feeding. The birds are largely water-dependent and would most likely be present in the wetland emergent habitats located along the Tempe Drain Outfall and its confluence with the Salt River or migrating through the project area.

5.10.7 Invasive Species

Under Executive Order 13112, Invasive Species, dated February 3, 1999, all projects that occur on federal lands or are federally funded must: "subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to:

i) prevent the introduction of invasive species;
ii) detect and respond rapidly to, and control, populations of such species in a cost-effective and environmentally sound manner;
iii) monitor invasive species populations accurately and reliably;
iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded."

In accordance with Executive Order 13112, the State of Arizona Department of Agriculture's noxious weed list was reviewed by a qualified noxious weed/invasive species authority in summer 2003. The results of this review are summarized below.

Survey Methods

Many hazards are present within the I-10 corridor R/W; therefore, only areas considered safe were surveyed for the Department of Agriculture's listed noxious weeds. A visual inspection was conducted, and all stages of weed development were considered for the various habitat types and climatic conditions in this location.

Survey Results

Only one invasive species, dodder (Cuscuta spp.), was identified during the 2003 survey. Buffelgrass (Pennisetum ciliare) was also identified during the survey and was added to the Arizona invasive species list in the spring of 2005. Dodder contains yellowish stems, thread-like and twining, and its leaves are reduced to thread-like scales. Flowers are numerous in compact clusters, 5-parted and shallowly cupped, white to pink. This species was located at GPS latitude N33 24.972 and longitude W112 01.398, which is located along Salt River banks where water has frequently flowed or ponded.

Buffelgrass is a hearty perennial grass that can reach to 39 inches tall. It usually invades an area by growing in disturbed earth such as roadsides, but can take over native flora if left unchecked. Buffelgrass can grow an infloresence several times per year. Buffelgrass is located throughout the I-10 corridor within the project area.

No construction schedule has been set at this time. Additional surveys to identify any additional invasive species will be required to take place within one growing season of expected project construction. The ADOT standard mitigation measures would address any issues.

5.11 CULTURAL RESOURCES

Cultural resources include archaeological or cultural sites, standing structures, and other historic properties considered to be eligible for or listed on the National Register of Historic Places (NRHP). Section 106 of the National Historic Preservation Act (NHPA) mandates that federal agencies consider the impact of their undertakings on historic properties within the project's Area of Potential Effect (APE).

A Class I cultural resource literature review was completed in 2005. The investigation encompassed nearly 14 miles along I-10 between SR 51 and Santan Freeway in Maricopa County, as well as limited portions of I-17, SR 143 and US 60, to determine whether all or portions of the project corridor were previously surveyed and whether significant cultural resources are known to exist within the project corridor that could be negatively affected by future improvement projects. The APE is currently being developed and will be described and evaluated relative to project alternatives in future cultural reports and the EIS for this project.

The Class I report, which consisted of a comprehensive record search and site files check for all resources located within one mile of the existing ADOT right-of-way, identified 33 previously recorded cultural resource sites, 55 previous surveys, and numerous prehistoric and historic canals.

The literature review revealed that seven of the previously recorded sites were eligible for listing in the NRHP. The NRHP criteria for evaluation state that historic properties should:

A. Be associated with events that have made a significant contribution to the broad patterns of our history; or
B. Be associated with the lives of persons significant in our past; or
C. Embody the distinct characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. Yield, or be likely to yield, information important in prehistory or history.

Further, a property must be evaluated by its association with an important historic context and retain integrity of those features necessary to convey its significance.

Prehistoric sites include Hohokam habitation sites (ranging from large villages to small, temporary camps), artifact scatters, canals, terraced gardens, and petroglyphs, as well as a number of sites with unknown function/use. Historic sites and features include road segments, buildings, cemeteries and shrines, canals, artifact scatters, and landfills.

Pueblo Salado and Los Hornos sites are eligible for inclusion in the National Register of Historic Places (NRHP), and both have been subject to several data recovery projects. The La Ciudad site AZ T:12:1 (ASM) and the Dutch Canal Ruins site AZ T:12:62 (ASM) are also eligible or potentially eligible for the NRHP. The La Ciudad site AZ T:12:1 (ASM), located west of I-10 and north of Van Buren Street, has been documented in several studies. The Dutch Canal Ruins site AZ T:12:62 (ASM) covers a large area between Buckeye Road and Washington Street on either side of I-10 and is potentially eligible for the NRHP. One site at I-10 and Broadway Road, AZ U:9:76 (ASM) may need to be tested to determine its NRHP eligibility. No records of NRHP eligibility were found for the other sites within the APE, and the current condition of these sites is not known.

The Western, Highline, and San Francisco Canals have been fully documented with Historic American Engineering Record (HAER) studies (Andersen 1990a and 1990b), and no further work would be necessary. Numerous prehistoric canals intersect the APE, but documentation is limited.

The City of Tempe Double Butte and Belle Butte Cemeteries are currently being formally evaluated for their National (or State) Register eligibility.
One survey was conducted prior to 1985, but may not meet current professional survey and recording standards. It is therefore recommended that all land surveyed prior to 1985, and all previously unsurveyed open and undisturbed land within the APE, should be surveyed to determine whether any previously unreported cultural resources exist that could be affected by future improvement projects. Additionally, preparation of a monitoring and discovery plan is recommended to address the potential discovery of canals and other cultural resources. Finally, the sites identified outside the APE will not be affected by this undertaking; however, should the APE change during subsequent design phases, additional evaluation will be necessary.

ADOT initiated project consultation with the State Historic Preservation Office on September 11, 2006 and included the following consulting parties: FHWA, ADOT, SHPO, the Flood Control District of Maricopa County, the Bureau of Reclamation, the City of Phoenix, the City of Tempe, the City of Chandler, the Town of Guadalupe, the Salt River Project, the Salt River Pima-Maricopa Indian Community, the Gila River Indian Community, the Ak-Chin Indian Community, the Hopi Tribe and the Fort McDowell Yavapai Nation. Concurrence on the eligibility recommendations was received from the SHPO on September 13, 2006. A list of the properties and eligibility recommendations is provided in Table 34.

Table 34 – I-10 Corridor Improvement Study
NRHP Eligibility Determination for Archaeological Sites within the APE

Site	Site Type	NRHP Eligibility
AZ T:12:1(ASM)/La Ciudad	Hohokam Village	Eligible under NRHP Criterion D
AZ T:12:12 (ASU)/Los Solares	Hohokam Habitation	Eligible under NRHP Criterion D
AZ T:12:47 (ASM)/Pueblo Salado	Hohokam Village; Pre-Classic/Classic	Eligible with no criterion listed
AZ T:12:62 (ASM)/Dutch Canal Ruin	Hohokam Village; Pre-Classic/Classic	Eligible with no criterion listed
AZ T:12:154 (ASM)/Western Canal	Historic Canal	Eligible under NRHP Criterion A
AZ U:9:16(ASM)	Hohokam artifact scatter	Not evaluated
AZ U:9:17(ASM)	Hohokam artifact scatter	Not evaluated
AZ U:9:26(ASM)	Hohokam Village	Not evaluated
AZ U:9:48 (ASM)/Los Hornos	Hohokam, Euroamerican, Yaqui Village; Pioneer/Classic/Historic	Eligible with no criterion listed
AZ U:9:76(ASM)	Hohokam artifact scatter	Not evaluated

Table 34 – I-10 Corridor Improvement Study
NRHP Eligibility Determination for Archaeological Sites within the APE

Site	Site Type	NRHP Eligibility
AZ U:9:77 (ASM)	Euroamerican artifact scatter; Prehistoric	Not eligible
AZ U:9:79 (ASM)	Euroamerican artifact scatter; 1900's-1920's	Not eligible
AZ U:9:86 (ASM)/Road from Ft. McDowell to Maricopa Wells	Euroamerican Road; 1870 (GLO map)	Not evaluated
AZ U:9:233 (ASM)/North Branch Highline Canal	Euroamerican Highline Canal; Historic 1910-1926	Eligible under NRHP Criterion A but fully document with HAER Study.
M 16b/Midvale	Unknown	Not evaluated
Un-numbered 2	Unknown	Not evaluated
Midvale Terrace Gardens	Hohokam agricultural fields	Not evaluated
Prehistoric canals, multiple	Prehistoric Hohokam canals	Not evaluated

Other potentially eligible sites may be determined to be within the study area based on a current update of the literature search, an investigation of potentially eligible structures and determination of the eligibility of Belle Butte and Double Butte Cemeteries.

5.12 TITLE VI/ENVIRONMENTAL JUSTICE

Title VI of the Civil Rights Act of 1964 and related statutes ensure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, age, sex, and disability. Executive Order 12898 *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (1994) directs that programs, policies, and activities identify and address as appropriate, disproportionately high and adverse human health and environmental effects on minority and low-income populations.

Census tract data, compiled by the Arizona Department of Economic Security, was evaluated to assess the demographic makeup of the project area (Table 35). The project study limits cross 26 census tracts.

Table 35 – I-10 Corridor Improvement Study Area Demographic Data

Location/Census Tract	Boundaries	Total Population	Total Households	Average Persons/ Household	Median Household Income/Family of Four	Percent Minority	Employed
Maricopa County		3,072, 149	1,132,886	2.67	$45,358	33.8	
City of Phoenix		1,321,045	465,834	2.79	$38,953	44.2	
City of Tempe		158,625	63,602	2.41	$47,456	30.3	
City of Chandler		176,581	62,377	2.82	$44,541	31.4	
Town of Guadalupe		5,228	1,110	4.7	$20,769	98.5	

Table 35 – I-10 Corridor Improvement Study Area Demographic Data (continued)

Location/Census Tract	Boundaries	Total Population	Total Households	Average Persons/ Household	Median Household Income/Family of Four	Percent Minority	Employed
1133 Phoenix	McDowell to North E Van Buren Street to South 16th Street to West 24th Street to East	6,422	1,793	3.45		89.3	2,062
1139 Phoenix	E Van Buren Street to North 16th Street to West 24th Street to East Buckeye Road to South	1,471	382	3.68		89.5	176
1151 Phoenix	Buckeye Road to North 16th Street to West 24th Street to East Salt River to South	201	55	3.65	$41,058	92	47
1149 Phoenix	Buckeye Road to North Central Avenue to West 7th Street to East Salt River to South	2,906	929	2.96		91.3	603
1150 Phoenix	Buckeye Road to North 7th Street to West 16th Street to East Salt River to South	3,229	782	4.06	$29,706	95.6	1,064
1138 Phoenix	E Van Buren Street to North 24th Street to West Priest Drive to East Salt River to South	2,319	791	2.87	$27,755	73	1,060
1152 Phoenix	Salt River to North 24th Street to West State Highway 143 to East Broadway Road to South	3,113	763	4.08	$21,588	92	969
1161 Phoenix	Broadway Road to North 24th Street to West S 32nd Street to East E Roeser Road to South	3,987	934	4.27	$21,154	97.4	1,309
1162.03 Phoenix	Broadway Road to North 24th Street to West S 40th Street to East Baseline Road to South	2,120	819	2.58	$33,553	59.5	990
1162.04 Phoenix	Broadway Road to North S 40th Street to West 48th Street to East Southern Avenue to South	3,700	1,052	3.52	$37,321	74.4	1693
1167.04 Phoenix	Baseline Road to North 16th Street to West I-10 to East Guadalupe Road to South	5,500	2,262	2.56	$44,798	59.2	3,192

Table 35 – I-10 Corridor Improvement Study Area Demographic Data (continued)

Location/Census Tract	Boundaries	Total Population	Total Households	Average Persons/ Household	Median Household Income/Family of Four	Percent Minority	Employed
1167.09 Phoenix	Guadalupe Road to North S 48th Street to West I-10 to East Elliot Road to South	2,354	1,177	1.99	$52,606	25.8	1,742
1167.08 Phoenix	Elliot Road to North Elliot/Warner to West I-10 to East Warner Road to South	5,395	2,714	1.98	$44,575	13.2	2,602
1167.17 Phoenix	Warner Road to North S 48th Street to West I-10 to East Ray Road to South	3,553	1,669	2.13	$49,402	29.7	2,333
1167.19 Phoenix	Ray Road to North Ranch Circle South to West I-10 to East Chandler Boulevard to South	6,774	2,628	2.58	$73,371	21.6	3,880
1167.12 Phoenix	Chandler Boulevard to North S 40th Street to West I-10 to East Pecos Road to South	5,156	1,983	2.6	$65,516	25.9	3,208
3197.04 Tempe	Buckeye Road to North State Highway 143/48th Street to West Priest Drive to East Southern Avenue to South	1,206	410	2.8	$41,985	43.8	589
3197.03 Tempe	Southern Avenue to North 48th Street to West Priest Drive to East Baseline Road to South	4,094	2,016	2.03	$32,173	30.2	2,294
3197.02 Tempe	Broadway Road to North Priest Drive to West Kyrene Road to East Baseline Road to South	8,382	3,408	2.46	$41,440	42	4,852
3198 Tempe	W Southern Ave to North S Kyrene Road to West Baseline Road to South S Rural Road to East	7,050	3,007	2.34	$35,656	35.1	4,161
3200.07 Tempe	Baseline Road to North Priest Drive to West Kyrene Road to East Guadalupe Road to South	5,950	2,572	2.31	$41,318	40.7	3,784
3200.01 Tempe	Guadalupe Road to North I-10 to West S Kyrene Road to East Elliot Road to South	5,948	2,763	2.15	$41,370	37.6	3,884
3199.10 Tempe	Elliot Road to North I-10 to West S Rural Road to East Warner Road to South	3,914	1,295	3.02	$97,725	21.6	1,985
5227.09 Tempe	Warner Road to North I-10 to West Kyrene Canal to East Ray Road to South	1,662	545	3.05	$83,231	25.6	863
3200.02 Guadalupe	Baseline Road to North I-10 to West Highline Canal to East Mineral Road to South	5,228	1,110	4.7	$30,089	98.5	1,923
5227.21 Chandler	Knox Road to North I-10 to West Kyrene Road to East Pecos Road to South	5,051	1,897	2.66	$71,212	28	2,951
					Total Number of Employed		50,055

Note: Shaded boxes represent income percentages exceeding eligibility criteria.
Low Income = Federal Guideline for 2002. Median Household Income for a family of 4 <$18,850. (MAG 2004–2008 TIP Guidance Report) July, 2002.

The Final Department of Transportation Order on Environmental Justice (U.S. Department of Transportation [USDOT] 1997) defines low-income as a median household income at or below the Department of Health and Human Services poverty guideline, which is currently $18,850 for a family of four. The 2000 census reported 1999 income information. Based on this information, the study area has concentrations of low-income populations. Three census tracts within the study area have incomes below the Department of Health and Human Services poverty guideline. All three are located within the City of Phoenix.

As several census tracts within the project area include low income and minority populations, care will be needed to consider these populations as alternatives are developed and mitigation is considered including the area between 40th and 48th Streets, where the proposed alternatives could require business and residential relocations. Another area of concern exists between Baseline and Guadalupe Roads where new right-of-way options could include the high minority populations on the east side of I-10.

5.13 SECTION 4(F) AND SECTION 6(F) RESOURCES

Introduction

Section 4(f) refers to the original section in the U.S. Department of Transportation (DOT) Act of 1966 and applies to all agencies within the DOT. The Section 4(f) requirement, originally set forth in 49 United States Code (USC) 1653(f), requires the consideration in transportation project development of the use of publicly owned land of a public park, recreation area, or wildlife and

waterfowl refuge, or land of a historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, recreation area, refuge, or site). Historic sites are afforded protection under Section 4(f) if listed or determined eligible for the National Register of Historic Places (NRHP). In accordance with 23 CFR 771.135(a)(1), FHWA may not approve an action requiring the use of a Section 4(f) protected property, unless it is determined that:

- There is no feasible and prudent alternative to the use of land from the property; and
- The action includes all possible planning to minimize harm to the property resulting from such use.

Section 6(f) of the 1965 Land and Water Conservation Fund Act provides funding for acquiring property and developing public recreational facilities, and also protects against the loss of that property to other uses. This section of the Act states that "no property acquired or developed with assistance under this section shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses." Section 6(f) applies when the project acquires property where Land and Water Conservation Grant Funds have been used to either acquire or develop the property. Review of the Arizona State Park listing of Land and Water Conservation Grant Funds did not reveal any 6(f) properties within the project study area.

Historic Sites

Section 4(f) applies only to historic sites that are on or are eligible for the NRHP and that warrant preservation in place. Typically, this refers to sites that are eligible under criterion A, B, or C of the NRHP as described in Section 5.11 of this document. Based on the initial Class I Report for this project, the only historic site within the APE that will be evaluated as a 4(f) property is the Western Canal. The Western Canal is eligible for the NRHP under Criterion A and crosses I-10 at the US 60 Traffic Interchange.

Parks/Recreational Resources

Three public parks are adjacent to the project corridor and are all located within the City of Phoenix:

- Mountain Vista Park located west of I-10 and north of Ray Road;
- Green Valley Park located just west of 16th Street on the south side of I-17 (14th Street and Watkins Road); and
- Barrios Unidos Park located just west of 16th Street on the north side of I-17 (16th Street and Durango Street).

The Sun Circle Trail is a combination of pedestrian and equestrian trails that link together to form an approximately 110-mile loop around and through the Phoenix metropolitan area. The trail follows the Highline Canal from just east of I-10 to Guadalupe Road, then west across I-10 to South Mountain Park. A portion of the Sun Circle Trail is also located within the project area as it connects across I-10 via the Guadalupe Road bridge.

Tempe Diablo Stadium is the spring training home of the Major League Baseball Anaheim Angels and hosts various sporting and non-sporting events. Tempe Diablo Stadium is not considered to be a 4(f) property as its primary use is not a park or recreation area.

A planned multi-use trail facility, the Tempe Peace Path, would follow the south Salt River bank and would include multi-use trails which pass under the I-10 bridges. No trails presently exist under I-10 at the Salt River. It has been determined that this facility does not warrant inclusion as a 4(f) property.

Based on a request from the City of Tempe, ADOT agreed to conduct a feasibility analysis for providing bicycle and pedestrian crossings of I-10 at Alameda Drive and the Western Canal. The feasibility study, completed in May of 2006, concluded that both crossings are feasible within the context of engineering and environmental considerations.

Currently no funding is in place for final design or construction of these facilities. The City of Tempe would pursue Federal, State or local funds that may be available for alternate modes of transportation. The feasibility study recommended that the I-10 Corridor Improvement Study consider the Alameda Drive and Western Canal crossings as an element of the study to ensure the proposed I-10 improvements would not preclude these future bicycle and pedestrian facilities.

Since these crossings are planned recreation facilities, which may or may not be constructed within the horizon of planning and construction of the I-10 Corridor Improvements, they are not warranted for inclusion as Section 4(f) properties.

Conclusions

A Section 4(f) Evaluation will be prepared along with the EIS to provide detailed data on Section 4(f) properties and information to determine possible feasible and prudent alternatives that avoid the use of these resources. A Section 4(f) "use" occurs when:

- Land from a Section 4(f) property is acquired for a transportation project--referred to as a "direct taking"--or
- The proximity impacts of the transportation project on the Section 4(f) property, without acquisition of land, are so great that the purposes for which the Section 4(f) property exists are substantially impaired. This circumstance is known as "constructive use."

Table 36 lists the properties that will be evaluated under Section 4(f) based on known information at the time of this document.

Table 36 – I-10 Corridor Improvement Study Section 4(f) Properties

Property	Type	Location
Western Canal	Historic site eligible for the NRHP under Criterion A.	Crosses I-10 at the US 60 Traffic Interchange
Mountain Vista Park	Public Park	West side of I-10, north of Ray Road
Green Valley Park	Public Park	14th Street and Watkins Road
Barrios Unidos Park	Public Park	16th Street and Durango Street
Sun Circle Trail	Public Trail and Recreational Facility	I-10 at the Guadalupe River Bridge

Additional 4(f) resources may be determined to be within the study area and Area of Potential Effect based on current investigation of potentially eligible structures and determination of the eligibility of Belle Butte and Double Butte Cemeteries.

5.14 PUBLIC AND AGENCY INVOLVEMENT

An extensive agency and public involvement program was initiated in January 2002 for this study. To facilitate this process a Public Involvement Plan has been prepared to identify actions needed to obtain meaningful agency and public participate and to ensure a timely and responsible plan is followed for the project. A Public Involvement Team composed of members of the project consultant team, ADOT and the FHWA has been formed and meets monthly.

The effort began with meetings and personal interviews with key project stakeholders, local agency representatives, and business representatives. The goal of these meetings was to introduce the project and define initial agency and public concerns. Project team presentations were also conducted for various state and local agency representatives to explain the purpose and need for the project and identifying preliminary agency interests and concerns.

An agency scoping meeting was held on July 31, 2002 at the Fiesta Inn in Tempe, Arizona. Thirty-two agency representatives attended with other agencies providing written comment. During the meeting, representatives were invited to identify their agency's involvement with the project, their initial concerns and any areas of conflict, and any other projects planned within the study area. An interactive discussion ensued and many important issues were noted as comments.

Three public scoping meetings were conducted by ADOT on August 6th through August 8th at the following locations:

- Tuesday, August 6, 2002 — Excelencia Elementary School, 2181 East McDowell Road, Phoenix, Arizona
- Wednesday, August 7, 2002 — Compadre High School, 500 West Guadalupe Road, Tempe, Arizona
- Thursday, August 8, 2002 — Mountain Pointe High School, 4201 East Knox Road, Phoenix (Ahwatukee), Arizona

Approximately 45,000 newsletters were distributed within the study area, and an advertisement was placed in the *Arizona Republic*, *Ahwatukee Foothills*, and *La Voz* newspapers. Approximately 61 individuals attend the meetings. Comments and concerns were taken verbally, on written comment forms, and via e-mail and the project web site and served to identify public sentiment about the project, and provide important knowledge about the study area.

The agency and public input has helped to identify an initial range of alternatives for consideration. These alternatives included: freeway widening alternatives, parallel facilities, potential double-decking of I-10, a depressed double-decking system, toll/congestion pricing, the potential elimination of entrance and exit ramps to local arterial streets and mass transit. Initial screening by the Project Team identified I-10 widening improvements, including the express/local lane concept, as the most viable concept for developing an initial range of alternatives. These improvement concepts are the I-10 Widening Alternatives. A separate *Final Scoping Report* documenting the first phase of the EIS study process was completed in April 2003.

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Since that time, the project team has conducted over 200 meetings with the Federal, State, and local agency stakeholders; business owners; and other interested parties. A list of the meetings is included in Appendix B.

Over the past fifteen months, the Project Team has conducted a proactive local agency coordination program. Individual meetings were held with representatives of the various departments within the cities of Phoenix and Tempe, and the Town of Guadalupe. The purpose of these meetings was to present the I-10 widening concepts and local access concepts. Based upon feedback received at these meetings, the Project Team developed additional local access options for evaluation. At the conclusion of this process, the Phoenix Aviation Department, Phoenix Street Transportation Department, and the City of Tempe provide their recommendations for local access options to be carried forward for further development with the DCR and EIS. A copy of this correspondence is also included in Appendix B.

The recommendations provided by the local agencies were included as an evaluation criterion for the Tier 1 Alternatives Screening Process. At the conclusion of this process, the local agencies were provided the opportunity to comment on the Project Team recommendations at the Agency Coordination Meeting held on January 16, 2007. All parties concurred with the recommendations presented from the Tier 1 evaluation.